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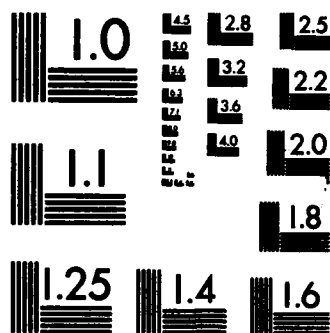
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STUDENT REPORT

BIRTH ORDER AND THE AVIATOR

LCDR BARRY C. HERTSGAARD 87-1180

"insights into tomorrow"

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REPORT NUMBER 87-1180

TITLE BIRTH ORDER AND THE COMBAT AVIATOR

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Submitted to the faculty in partial fulfillment of
requirements for graduation.

AIR COMMAND AND STAFF COLLEGE
AIR UNIVERSITY
MAXWELL AFB, AL 36112

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

A182375

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED		1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION/AVAILABILITY OF REPORT STATEMENT "A" Approved for public release Distribution is unlimited.	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE			
4. PERFORMING ORGANIZATION REPORT NUMBER(S) 87-1180		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION ACSC/EDC	6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION	
6c. ADDRESS (City, State and ZIP Code) Maxwell AFB AL 36112-5542		7b. ADDRESS (City, State and ZIP Code)	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State and ZIP Code)		10. SOURCE OF FUNDING NOS.	
		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT NO.
11. TITLE (Include Security Classification) BIRTH ORDER AND THE AVIATOR			
12. PERSONAL AUTHOR(S) Hertsgaard, Barry C., Lieutenant Commander, USN			
13a. TYPE OF REPORT	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Yr., Mo., Day) 1987 February 17	15. PAGE COUNT 12
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB. GR.	
19. ABSTRACT (Continue on reverse if necessary and identify by block number)			
<p>▶ This report conducts limited exploratory research into the possible relationship between birth order and an above average aptitude for aviation training. It reviews some of the basic elements of the science of ethology, birth order traits and possible correlations to military aviators. The study concludes that actual research into the Navy and Air Force aviator populations should be conducted to establish what, if any, relationship exists. Improved selection criteria might be established.</p>			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS <input type="checkbox"/>		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL ACSC/EDC Maxwell AFB AL 36112-5542		22b. TELEPHONE NUMBER (Include Area Code) (205) 293-2483	22c. OFFICE SYMBOL

ABOUT THE AUTHOR

Lieutenant Commander Hertsgaard is a 1976 graduate of the Citadel with a degree in Business Administration. Commissioned in the U.S. Navy upon graduation he reported to NAS Pensacola for aviation training. He was designated a Naval Flight Officer in April 1978. He then reported to NAS Oceana Virginia for training in the F-4J Phantom. A member of Carrier Air Wing Six, he made extended deployments to the Mediterranean Sea in 1979 and the Indian Ocean for hostage contingency operations in 1980-1981. He was a qualified mission commander and a graduate of the Navy Fighter Weapons School (TOPGUN). Later assigned to Fleet Combat Training Center Atlantic where he was officer-in-charge of the air control training division. In that capacity he was responsible for all Atlantic Fleet air intercept controller (AIC) and anti-submarine air controller (ASAC) training from 1981 to 1983. Ordered to the USS JOHN F KENNEDY (CV-67) as the Assistant Combat Information Center (CIC) Officer in November 1983. He participated in operations supporting the Multi National Force in Beirut. One of three officers onboard the JFK with weapons release authority for ship and airwing weapons. LCDR Hertsgaard is presently assigned to the Air Command and Staff College.

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PROBLEM FORMULATION

The past few years have witnessed a major increase in the nation's interest and appreciation of the armed forces. Hollywood has made life in the military appear much differently than was the case a mere 10 years ago. Release of the major motion picture Top Gun has made military aviation appear to be one of the most lofty and glamorous professions for high school and college students. Recruiters have had a major increase in the applications for flight training. An established selection process is used to select the most capable individuals for aviation training.

In this competitive selection process, objective and measurable criteria are used in the screening of the applicants. The Air Force and the Navy use essentially the same types of measurements. These consist of: physical examination and a minimum physical fitness score, Aviation Selection Test Battery, high school or college grade point averages as applicable, references and personal interviews conducted by commissioned officers (1:--). A question may be asked concerning these criteria. Do these qualifications and test accurately measure and select those individuals most adaptable to modern combat aviation? There may be some other factors that have been overlooked which could be highly beneficial to this selection process.

This paper will examine the importance of birth order as a key element of human behavior and abilities. An exploratory research method will be used to advance and support the hypothesis that birth order will have a significant correlation to an individual becoming a qualified and successful military aviator. Substantial evidence exists to support the importance of birth order as the major determinant of behavioral development and what abilities, traits, and interests an individual will have as an adult.

The training of a combat-ready, military aviator is a very expensive investment for the Department of Defense (DoD). The cost of putting a trained aviator into the fleet for the Navy or into an operational wing in the Air Force has been estimated at over \$1 million per individual pilot (2:--). With these large dollar amounts being spent on training, it is imperative that every effort be made to put the right person into that seat in the aviation training pipeline. If a statistically significant correlation of birth order to successful completion of aviation

training can be shown, substantial cost savings might be realized in both the Navy and the Air Force flight training programs by improved methods of selecting aviation training candidates.

Much has been written on the subject of a person's birth order and the effect that it has on that individual's behavioral patterns. The Old Testament and the works of William Shakespeare are replete with examples showing that the ordinal position of an individual in his or her family was of great importance. Consider the significant dilemma young Joseph had with his elder brothers when his father made Joseph, the youngest, his favorite and presented him with the coat-of-many-colors. Of the tragic Shakespearean figures of Macbeth and his wife, both were firstborns and saw life as only a firstborn will in their gloomy and unhappy world.

The success of royalty and the patterns of family inheritance are based almost completely, if not totally, on the ordinal position of the siblings. This is true not only in Western societies, but in those found throughout the world. Some may argue that this has created a predisposed social bias to the firstborn position.

This report will use somewhat more recent data, and that of a more scientific nature, to support the hypothesis that birth order is crucial to human behavioral development and that a significant correlation has existed in the past to military aviation and that it should still exist. The study of birth order is not new, but it has not been until the last few decades that accurate scientific studies have been made.

The study of birth order as a part of a scientific discipline has been primarily conducted by a group of human/animal behaviorists called ethologists. Ethology is a systematic study of human character (3:781). Dr Walter Toman conducted much of the initial research on birth order. His book, Family Constellation, has been the basis for many subsequent studies. Toman states, "We proceed from the assumption that a person's family represents the most influential context of his life, and that it exerts influence more regularly, more exclusively, and earlier in a person's life than do any other life contexts" (4:5). Lest anyone consider the findings of ethologist unimportant, they did win the Nobel Prize for Medicine in 1973 for their work on human and animal behavior patterns (5:102).

A more detailed look at ethology and an explanation of behavior patterns will be helpful in comprehending the importance of birth order on individuals. Ethologists have shown that "life experience must be superimposed on genetically programmed patterns of behavior for normal development of the individual" (5:102). Put more simply, the Darwinistic selection process is

heavily influenced by the individual's actual experiences, particularly that of family development as well as a number of fixed, innate responses. This has produced a hierarchy of instinct in man's historical development: (1) the male hierarchy of dominance, (2) the male-male bond, (3) territorial identification, and (4) the male-female bond (6:1).

The first two instincts facilitate the establishment of order in both societal groups and in the family. Territorial identification reflects both the group's and the individual's desire to ensure the survival of the species and the continuation of the group's behavior characteristics. The male-female bond is for the reproductive purposes of the group and forms the basis for the family unit which is the rearing device for the species. Maximum human development occurs within the structure of this "normal family" (6:2-6).

The normal family has a dominant and loving male, bonded with a subordinate and loving female, living in a stable group of relatives and offspring. This group or organization satisfies the human disposition for lasting partnerships and provides an environment for the continuous mothering and fathering during the formative years through the completion of adolescence. This definition does not presuppose a low or negative opinion of women. Numerous studies have shown women to be physically superior to men in categories such as tolerance to pain. Women, overall, tend to be more adaptable than are men. What is important is that with virtually no exceptions, males are biologically programmed to be the hunters and the dominant members of the family unit and in society in general (7:B8).

When the structure of a normal family is not present, a stressful environment exists. This can have a temporary or a lasting damage.

The interruption or denial of male dominance and female subordination in the family unit results in parental deprivation . . . there are two particularly sensitive periods in which certain basic parental bonds with children become fixated, as in imprinting: from conception until 6 years of age and during puberty, especially for boys. If such periods are passed biologically unfulfilled, there will be lasting damage to the development of the children (6:2-6).

Dr Benjamin Spock, the renowned pediatrician, stated, ". . . when women become aggressive and dominating, they often produce submissive sons, an unwholesome development" (8:56). The number of single-parent households is continuing to grow in this country. Will this social development result in a large number of maladjusted adolescents and young adults in the years to come? Time will tell. Harvard Professor Emeritus, Dr Carle Zimmerman, has stated a somewhat more pessimistic view of the future for us.

The extinction of faith in the familialistic system is identical with the movements in Greece following the Peloponnesian Wars and in Rome from A.D. 150. In each case, the change in the faith and belief in family systems was associated with rapid adoption of negative reproduction rates and with enormous crises in the very civilizations themselves (6:1).

Thus far, we have been establishing the conceptual framework of the family as it relates to the individual and society in general. A macro viewpoint has been used till now, but what about specific traits that have been linked to individuals based upon birth order. The following are a series of findings and surveys that show a definite correlation to birth order.

As of March 1985, of the 102 U.S. Supreme Court justices appointed by the President, 56 have been firstborn. Random probability would have expected the number of firstborn justices to have been appointed only 36 times out of 102 possibilities. Also, Republican Presidents have appointed 78 percent firstborns to the Court while Democratic Presidents have appointed on 36 percent firstborns to the Court (10:22). The partisan relationship to birth order is interesting, but not unexpected. The Republicans would tend to select appointees of a more conservative nature; a major trait of being firstborn. Democrats, seeking a more liberal appointee, will find that characteristic trait more common among latter-born siblings.

Twenty-one of the first 23 U.S. astronauts who flew on space missions were either firstborn sons or were the only children of their parents (11:C1). The striking thing about this figure is that statistically only 33 percent of the population is firstborn. The astronauts mentioned here show a group that is over 91 percent either firstborn males or only children.

Families with a firstborn father and a latter-born mother had children who showed a smaller incidence of what is termed diseases of adaption. Examples of diseases of adaption are: heart disease, cancer, asthmas, diabetes, arthritis, and high blood pressure. This list is by no means exhaustive, but it does show that these diseases are not related to diseases of a viral or a bacteriological transmission such as measles, polio, mumps, cholera, AIDS, etc (6:7).

Famous American assassins have almost always been younger children in their families, and in most cases have had older brothers. John W. Hinckley, Jr., is a classic example. Hinckley's older brother has followed in the successful footsteps of the father. The older brother is the president of Vanderbilt Energy Corporation. Lack of self-esteem, hatred of authoritarian figures, and no grasp of reality led to the attempt on President

Reagan's life. A further list of the victims of these "younger brother" assassins include: Abraham Lincoln, James A. Garfield, William McKinley, John F. Kennedy, Robert F. Kennedy, and George C. Wallace (12:A21).

Though these have been generalizations, they do show that a pattern exists linking birth order to some recognizable patterns of human behavior and abilities. Much as been made of the special position and advantages enjoyed by a firstborn or only child. Superior mental capability and better health traits have been only some of the more positive attributes associated with firstborns. The Washington Post reported that, "The average score on the verbal portion of an IQ test for firstborn children was 105.6 compared with 96.8 for that of their younger brothers and sisters" (13:5). A study conducted in the Netherlands gives additional support to the relation of birth order and measured intelligence.

Lillian Belmont and Francis A. Marolla studied the intelligence tests given to almost 400,000 19-year-old men in the Netherlands. No matter what the size of the families that were involved, the firstborns were always associated with the higher intelligence scores (11:C1).

The previous examples have had obvious interest and application to the human behaviorists, but what is the value to the military? A U.S. Navy flight surgeon, Captain Frank Edward Dully, Jr., has found that the Naval aviator is more often than not a firstborn son. "If not a firstborn son, then he is a second-born son whose older brother is an artist or a dirt-bag" (14:--). As a Navy flight surgeon, Captain Dully has had the opportunity to observe firsthand hundreds of Naval aviators, both in a professional and a personal capacity.

Captain Dully is well known in the Naval aviation community and in the Air force aeromedical community for a lecture he gives called Sex and the Naval Aviator. The topic of this presentation is not the mating preferences of Navy pilots, flight officers, and flight surgeons, but rather the Naval aviators consistently visible behavior characteristics and personality traits.

Within the various communities of Naval aviation, Captain Dully found that the percentage of firstborns varies slightly, but consistently by aircraft and/or mission type. He found the highest percentage of firstborns in the fighter community, followed by the attack community, and then the land-based patrol community (14:--). These findings are consistent with previous studies that found a very high percentage of firstborns in these positions. A study conducted in 1970 found that 67 percent of superior Navy jet pilots were firstborn compared with 55 percent of Navy pilots picked at random (15:88).

In an address given to an Air Force aeromedical symposium, Captain Dully stated that roughly the same birth order percentages would be present with Air Force aviators and the various types of aircraft and mission communities (14:--). I conducted a limited and very informal survey of 19 fellow classmates at the Air Command and Staff College (ACSC). The sample group of ACSC students were all fighter pilots flying either the F-15 or the F-16. There was no surprise in the results. Of the 19 pilots questioned, 14 were firstborn sons or 74 percent of the group studied. That percentage is consistent with previous studies, but it is almost 2 1/2 times the statistical random expectation.

As we look for answers to explain why firstborns seem to gravitate to these positions, the astronauts may be helpful in illustrating an understanding for this phenomenon. Dr Lucille K. Forer offered the following rationale for why firstborn males have had a predominance in the astronaut corps:

(1) high need for achievement, (2) high responsibility scores, (3) low test anxiety, (4) strong self-discipline, (5) need for approval of others, (6) susceptibility to social pressure, (7) conformity to authority and regulation, and (8) task orientation (15:88).

Captain Dully noted that Naval aviators, as a general rule, will have the following features: always in control of self and the situation; mission oriented and compartmentalized; and methodical and systematic (14:--).

Firstborns have also shown higher aspiration levels, a higher achievement motivation, and tested highest in the semantic differential of "power" (5:294-295). Compared to other birth order patterns, we can see the firstborn has a greater need to gain and exercise positions of authority, visibility, and responsibility.

Obviously, the occupation of a military aviator satisfies many, if not most, of the needs of the firstborn. Not only does the airplane and the demands of flying it fit in well with these traits, but the military life in general approves of and rewards those aforementioned traits. What then of a latter-born? Are there specific traits, skills, and abilities that the latter-born possess that may make him better suited for certain jobs and assignments? A latter-born, because of his sibling position, has learned how to get his way, not by force, but by imaginative tactics, creativity, and sometimes guile (16:--). His strength is not in the direct assault, but in the indirect approach and with intricate strategies.

The exclusion of women as aviators and as firstborns has not been an oversight. The title of this paper, Birth Order and the Aviator, does not selectively omit them from consideration. But, the operative aspect of military aviation is combat aviation. Currently, women are precluded by law from serving in billets that are considered to be "combat arms." I can see where little will be gained for the purpose of this project to include them in an analysis.

Also, the integration of women into operational tactical aviation squadrons would elicit significant problems. The real question is whether or not integrating women into combat units is desirable or even feasible. My own observations of what makes a top-notch squadron superior to an average one is the strength of the esprit de corps and the camaraderie that is also exhibited in athletic teams involved in contact sports.

Lionel Tiger stated in his book Men In Groups,

When a community deals with its most pressing problems, when statements of internal and external importance are made, when--particularly in warfare--decisive actions must be taken, at these times females do not participate. The public forum is the male forum (17:57).

I am not promoting misogyny or seeking an escalation of the war between the sexes, but rather asking that we clearly define the role of women in the military, vis-a-vis combat. Legislation can accomplish many things, but changing mankind's biological behavior patterns will probably not be among them.

In anticipation of a possible feminist rebuttal to this statement, there is no similarity between the previous point and the exclusion of Blacks from equality and integration until the end of World War II. That was a case of bigotry that had no scientific rationale or historical basis for support and was corrected at the completion of the war. I can find no major military organization in the world today that places women into billets and assignments that would expect to see combat if hostilities broke out. Not even the defense forces of Israel do this, although many people are under the false impression that they do put women side-by-side men in combat (18:--). The mere fact that legislation has been previously ratified that could support a bill to change the federal statutes is no reason to do it.

CONCLUSION

Several conclusions can be made from the material presented in this report. Birth order is a highly significant determinant

of an individual's behavior patterns. Both the Navy and the Air Force have a far higher than statistically random chance of finding a majority of firstborns in their ranks of aviators. Highly successful aviators, more often than not, have been firstborn; the examples of the first U.S. astronauts on space missions and the Navy pilots of the 1970 study verify that point. Leadership and positions of authority have an over-representation of firstborn: Franklin Roosevelt, George Washington, John F. Kennedy (a second-born who was treated and responded as a firstborn after his older brother died), Winston Churchill, Joseph Stalin, and Ronald Reagan (15:111-120). You may not like everybody in that list, but they are among the most powerful leaders that the past two centuries have seen.

These conclusions need to be tested for their current validity and applicability to the military services. To this point, some generalizations have been stated and some indirect conclusions advanced. The specific data that was associated with military aviation is over 15 years old, that of the astronauts is now more than 20. The data needs to be updated to see if those past conditions still exist. Clearly what is required to pursue this is a systematic survey of both the Air Force and Navy aviation communities.

DATA ANALYSIS

The data gathered could be used to support a possible modification of the initial selection system for aviation training candidates if a strong relationship to birth order is found to exist. Based on the data presented in this report, no changes to the current process could be recommended. But, descriptive and/or explanatory research could be conducted to either support or invalidate the hypothesis that birth order has a significant effect on the successful completion of aviation training for military aviators in both the Navy and the Air Force.

A study could be established to determine the relative importance that birth order has on the Navy and Air Force aviation training programs. Specific items to be addressed should include: (1) successful completion of the training syllabus based upon the variable of birth order; (2) comparison of nonsuccessful completion of the training syllabus to birth order; (3) correlation of aircraft/mission type to birth order; and (4) correlation of superior graduates of the training syllabus to birth order. If a significant correlation of data is found to link birth order to successful completion of aviation training, then further study could be undertaken to facilitate possible revisions in the selection process for aviation candidates. These revisions might include, but are not limited to: (1) active recruitment of those individuals who meet the

parameters of successful birth order patterns, and (2) include an additional category in the selection process for birth order. Use this category in an additional capacity for those birth orders shown to have a more favorable success rate in aviation training.

A second and somewhat related area that could be easily studied for birth order correlation is that of command selection and significant leadership positions. In both the Navy and the Air Force, it would be relatively easy and inexpensive to compare the selection for command and/or assignment to major leadership positions to birth order. The comparison could be further refined by breaking down the type of command, operational squadron or not, support organization, aircraft carrier, etc. This may provide more theoretical value than practical. I do not know if the respective personnel commands would agree to use birth order in their command selection process. However, if the number are significant enough, some changes and variations to the system could be considered.

A third area that should have a high degree of interest, but is not a function of aviation, is the special forces. Elite units, such as the Navy's SEALs, would make excellent study candidates. These individuals are certainly more than just a cut above the average military man. The psychological makeup and toughness that are necessities to these individuals may have strong correlation to birth order. The same goals for modifications to selection criteria for training could be considered as have been recommended for the aviation training programs.

Those interested in conducting in-depth research on birth patterns would do well to familiarize themselves with chapter 16 of Walter Toman's Family Constellation. Procedures for conducting this type of research are discussed and a list of questions for obtaining all the data for initial and follow-up research is provided.

More detailed research in the area of birth order could be valuable if a way can be found to improve the process of selecting candidates for aviation training. Dollars would be saved by a lower attrition rate and/or a lower drop-on-request rate. Also, a true comparison between the Navy and the Air Force could be done. Are birth order patterns among aviators similar between the two services, or is there a difference?

Birth orders are a remarkable tool to assist in viewing and analyzing an individual. The point of this paper has been to show the relationship between birth order and possible influence on aviation training. There is another, perhaps equally valuable and certainly more universal, aspect to it. Leaders and managers can use an understanding of birth order as a tool for utilizing

their personnel to the fullest potential. Understanding what an individual's strong points and weak points are can only make for a better effort and organization. Perhaps most important in this area is the value that an understanding of birth order can play in the analysis and counselling of a service member experiencing problems. Many psychotherapists and counsellors make use of birth order in their work (14:252).

The study of birth order in the military can be beneficial in a variety of ways. It is a fundamental part of the behavioral makeup of the human animal. The time certainly seems right to take advantage of this tool and use it to our advantage.

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